

SKATE BOOT WITH A REAR OPENING

Field of the invention

- 5 The invention relates to a skate boot comprising a rear opening for allowing insertion of a foot in the skate boot.

Background of the invention

- 10 Skate boots for inline or ice skates typically comprise a movable tongue disposed in the forefoot region and between the lateral and medial sides of the boot. Pulling the movable tongue forward creates an opening in the top and front of the boot, which allows insertion of the foot into the internal cavity of the boot. Laces or other tightening means disposed proximate to the tongue on the lateral and medial sides of the boot are generally used to
- 15 close the opening and tighten the tongue, lateral, and medial sides of the boot around the foot.

- One of the drawbacks associated with such front-entry skate boots is the discontinuity of the top and upper front regions of the boot that is introduced by three distinct
- 20 components, i.e. the tongue, and the lateral and medial sides of the boot. This discontinuity of the top and upper front regions of the skate boot does not necessarily provide optimal fit and comfort for the foot.

- Thus, there is a need for a skate boot allowing the rear entry of the foot into the boot, and
- 25 providing adequate support, comfort, and forward flexing characteristics.

Summary of the invention

As embodied and broadly described herein, the invention provides a skate boot comprising an internal cavity for receiving a human foot. The skate boot comprises a
5 front portion and a rear portion, the rear portion comprising an opening facing rearwardly and upwardly of the skate boot for allowing insertion of the foot in the internal cavity.

Brief description of the drawings

10 A detailed description of the embodiments of the present invention is provided herein below, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of a human foot with the integument of the foot in stippled lines and the bones in solid lines;

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Figure 2 is a front elevational view of the foot of Figure 1;

Figure 3 is a rear perspective view of a skate boot according to an embodiment of the invention;

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Figure 4 is a front elevational view of the skate boot of Figure 3;

Figure 5 is a rear elevational view of the skate boot of Figure 3;

25 Figure 6 is a right elevational side view of the skate boot of Figure 3;

Figure 7 is a left elevational side view of the skate boot of Figure 3;

Figure 8 is a rear exploded perspective view of the skate boot of Figure 3; and

Figure 9 is a front exploded perspective view of the skate boot of Figure 3.

5 In the drawings, the embodiments of the invention are illustrated by way of examples. It is to be expressly understood that the description and drawings are only for the purpose of illustration and are an aid for understanding. They are not intended to be a definition of the limits of the invention.

Detailed description of the embodiments

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In order to facilitate the description, a typical human foot is shown in Figures 1 and 2. The human foot has a heel H, an Achilles tendon AT, a plantar surface PS, a forefoot F, toes T, and lateral and medial sides LS and MS, respectively. The foot also has an ankle with a front ankle portion FAP and lateral and medial malleoli LM and MM, respectively.

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In Figures 3 to 9, a skate boot is illustrated generally and identified by reference numeral 10. The skate boot 10 comprises a front portion 12 and a rear portion 14, both defining an internal cavity for receiving the foot. The rear portion 14 comprises an opening 16 facing rearwardly and upwardly of the skate boot 10 for allowing insertion of the foot in the internal cavity.

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The rear portion 14 comprises a heel portion 18 enclosing the heel H, medial and lateral side portions 20, 22 facing the medial and lateral sides MS, LS respectively, and medial and lateral ankle portions 24, 26 facing the medial and lateral malleoli MM, LM respectively.

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As best seen in Figure 8, the opening 16 is defined by a bottom edge 28 formed on the heel portion 18, by a top edge 30 formed on the front portion 12 and by medial and lateral edges 32, 34 formed on the medial and lateral ankle portions 24, 26 respectively. The medial and lateral edges 32, 34 extend from the bottom edge 28 to the top edge 30 and each has an arcuately shaped. The bottom edge 28 may be at a level below the medial malleolus MM. In fact, it is understood that the level of the bottom edge 28 and the shape of the medial and lateral edges 32, 34 may vary to a certain amount from an embodiment to another as long as the opening 16 still faces rearwardly and upwardly of the skate boot 10 for allowing insertion of the foot in the internal cavity. Moreover, the heel portion 18 and the medial and lateral ankle portions 24, 26 may enclose the heel H and the ankle without entirely covering the Achilles tendon AT.

The skate boot 10 further comprises a fastening device 36 comprising a fastening member such a strap 38 capable to acquire either one of a fastened condition and a released condition. In Figures 3 to 7, the strap 38 is in the fastened condition wherein it obstructs at least partially the opening 16 to impede the foot from egressing the internal cavity. As best seen in Figure 5, the strap 38 extends across the opening 16 in the fastened condition. As seen in Figure 8 and 9, in the released position, the strap 38 ceases to obstruct the opening 16 and insertion and removal of the foot from the internal cavity is then possible. The strap 38 comprises a VELCRO hooks section and a VELCRO loops section.

Referring to Figure 5 and 7, the strap 38 extends from a first end having a ring 40 affixed to medial ankle portion 20 and into an opening in the medial ankle portion 20, under the front portion 12, out of an opening in the lateral ankle portion 26, and over the opening 16 to a second end. The second end may then be passed through the ring 40, and the strap 38 folded onto itself and secured thereto using VELCRO hooks and loops sections.

The strap 38 is made of a length of synthetic materials such as nylon, styrene butadiene

rubber (SBR) or polyvinyl chloride (PVC). It is understood that other materials and other fastening members such as clip buttons, hooks, buckles, laces, zippers or other fastening members known in the art may be employed without departing from the scope of the present invention. It is also to be understood that various other configurations of the strap 5 38 are possible without departing from the spirit and scope of the present invention. For example, the first end of the strap may be affixed to the medial ankle portion 24 extending therefrom over the opening 16, into a ring affixed to the lateral ankle portion 26, and folded back onto itself and fastened using VELCRO hooks and loops sections or other fastening means.

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The front portion 12 comprises a front opening 42 generally facing the front ankle portion FAP for allowing the ankle to flex forwardly. A stretchable portion 44 having stretchable bands 46 extending transversely side by side covers the front opening 42. The stretchable bands 46 are made of an elastomeric material, such as thermoplastic urethane (TPU). The stretchable portion 44 is over-molded, glued or sewn to the front portion 12. 15 Alternatively, a stretchable web may cover the front opening 42. The stretchable web may be made of an elastic and resilient material such as spandex or other synthetic material. As yet another alternative, the front opening 42 may be left as a void area. It is understood that various other configurations and synthetic materials may be used for covering the front opening 42 without departing from the spirit and scope of the present invention. 20

The skate boot 10 may comprise an outer shell 48 made of a single or multiple layers of synthetic materials such as nylon, thermoplastic urethane (TPU), ethylene vinyl acetate (TEVA), styrene butadiene rubber (SBR), polypropylene (PP) or polyvinyl chloride (PVC). In addition, outer shell 48 may be made of a single piece of such materials that 25 is formed into shape, or from multiple pieces that are joined together with a fastener such as stitches, glue, adhesives, or tacks. For example, in the embodiment shown, medial and lateral ankle portions 24, 26, and the front portion 12 are made of two relatively soft

layers of such synthetic materials, the outermost layer being meshed to facilitate aeration of the skate boot 10. The medial and lateral side portions 20, 22 and the heel portion 18 are made of somewhat more rigid forms of the above materials in order to provide added rigidity to the skate boot 10.

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The skate boot 10 also comprises an inner lining 50 received in the outer shell 48. The inner lining 50 can be made of a single or multiple layers of soft synthetic materials, such as nylon-based fabrics, styrene butadiene rubber (SBR) or LYCRA. In addition, the inner lining 50 may be made of a single piece of such materials that is formed into shape, or
10 from multiple pieces that are joined together with a fastener such as stitches, glue, adhesives or tacks. For example, the inner lining 50 may be made of an outer layer of a breathable tricot under which is disposed a thin layer of an elastomeric foam. The inner lining 50 may be affixed to an inner surface of the outer shell 48 by fastening means such as glue, stitches, tacks, staples or rivets. The inner lining 50 may have a shape that
15 follows the one of the outer shell 48.

The skate boot 10 further comprises a rigid insert 52 sandwiched between the outer shell 48 and the inner lining 50. The rigid insert 52 comprises a heel portion 54 enclosing the heel H and medial and lateral ankle portions 56, 58 facing the medial and lateral malleoli
20 MM, LM respectively. The rigid insert 52 is made of a unitary relatively thin piece of a synthetic material, such as polypropylene (PP), which is of sufficient rigidity to provide support. In addition, in order to provide added comfort, a thin foam layer may be bonded to an inner surface of the rigid insert 52. It is understood that various modifications can be made to the rigid insert 52 without departing from the spirit and scope of the present
25 invention. For example, medial and lateral ankle portions 56, 58 may be provided with a dished area in order to conform more adequately to the malleoli.

The skate boot 10 further comprises a rigid band 60 extending transversely along the top edge 30 of the front portion 12. The rigid band 60 is sandwiched between the inner lining 50 and the outer shell 48 and comprises respective ends projection downwardly for

forming medial and lateral wings 62, 64 facing the medial and lateral malleoli MM, LM respectively. Each of the wings 62, 64 comprises a cushioning pad 66 made of a synthetic foam or gel-like material and affixed to an inner surface of the wings 62, 64.

- 5 Referring to Figures 8 and 9, the skate boot 10 also comprises an insole 70 facing the plantar surface PS and a molded toe cap 72 facing the toes T. The toe cap 72 comprises aeration apertures 74. The insole 70 and toe cap 72 can be made of synthetic materials such as polypropylene (PP), thermoplastic urethane (TPU), or poly alpha-methylstyrene (PMS).

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It is understood that the inline skate embodiment shown in the figures is presented for purposes of example only, and that the skate boot 10 is adaptable to other sporting equipment, such as an ice skate.

- 15 The above description of the embodiments should not be interpreted in a limiting manner since other variations, modifications and refinements are possible within the spirit and scope of the present invention. The scope of the invention is defined in the appended claims and their equivalents.